AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) Apparatus for analysing statistical characteristics of an input signal, the apparatus comprising:

a signal input for receiving the signal;

~~means~~ an event detecting unit operatively coupled to the input for detecting events at which the signal level crosses a predetermined level with a predetermined slope;

~~means~~ a combining unit for combining multiple versions of the signal, the versions being shifted with respect to each other by amounts corresponding to the spacing of said events, to form a representation of the signal; and

~~means~~ a measuring unit for measuring a parameter dependent upon the shape of said representation and indicative of a statistical characteristic of said signal.

2. (Original) Apparatus as claimed in claim 1, arranged such that signals are deemed to have a predetermined slope if the slope has a predetermined sign.

3. (Currently Amended) Apparatus as claimed in claim 1 or claim 2, the apparatus being arranged to form a first representation in response to detected events of a first predetermined slope, and a second representation in response to detected events of a second different predetermined slope.

4. (Original) Apparatus as claimed in claim 3, wherein the parameter is dependent upon the shape of the combined first and second representations.

5. (Currently Amended) Apparatus as claimed in claims claim 1, or 2, wherein the event detecting means unit is operable to detect first and second different types of events, and the combining means unit is operable to combine versions of the signal shifted by amounts corresponding to the first type of events in a predetermined manner with versions of the signal shifted with respect to each other by amounts corresponding to the spacing of the second type of events to form said representation.

6. (Currently Amended) Apparatus as claimed in claim 5, including a mode switching means unit operable to change said predetermined manner of combination.

7. (Currently Amended) Apparatus as claimed in ~~claims~~ claim 1, ~~or 2,~~ wherein said predetermined level is substantially different from the average level of the signal.

8. (Currently Amended) Apparatus as claimed in ~~claims~~ claim 1, ~~or 2,~~ including a crossing level input ~~means~~ for receiving a signal defining said predetermined level.

9. (Currently Amended) An integrated circuit including the apparatus as claimed in ~~claims~~ claim 1, ~~or 2,~~ the integrated circuit further comprising:

a first input terminal for receiving said input signal,

a second input terminal for receiving a threshold signal representing said predetermined level, and

at least one output terminal for providing an output signal forming said representation.

10. (Currently Amended) A method of analysing ~~the~~ an input signal, the method comprising

detecting events at which the signal level crosses a predetermined level with a predetermined slope, ~~and~~

forming a representation of a combination of multiple versions of the signal, the versions being shifted with respect to each other by amounts corresponding to the spacing of the events, and

~~the method further including the step of~~ measuring a parameter dependent upon the shape of the representation.

11. (Original) A method according to claim 10, wherein the parameter is indicative of the degree of resemblance between said shape and the shape of a stored representation.

12. (New) The apparatus as claimed in claim 1, wherein the multiple versions of the signal are time-shifted copies of the input signal.

13. (New) The apparatus as claimed in claim 12, wherein the event detecting unit is operable to detect first and second types of events, and

the multiple versions of the signal include a first and second subset, such that

each of the first subset of multiple versions of the signal is time-shifted according to a time instance when one of the first type of events occur, and

each of the second subset of multiple versions of the signal is time-shifted according to a time instance when one of the second type of events occurs.

14. (New) The apparatus as claimed in claim 13, wherein the combining unit is operable to

average together trajectories of the first subset of multiple versions of the signal to form a first crosslation function;

average together trajectories of the second subset of multiple versions of the signal to form a second crosslation function.

15. (New) The apparatus as claimed in claim 14, wherein

the first type of event corresponds to time instances when the input signal crosses a predetermined threshold with a positive slope,

the second type of event corresponds time instances when the input signal crosses the predetermined threshold with a negative slope, and

a time-reversibility of a process characterized by the input signal is determinable by comparing shapes of the first and second crosslation functions.

16. (New) The method as claimed in claim 10, wherein

the detecting events includes detecting first and second types of events, and

the method further comprises

generating a first subset of the multiple versions of the signal by time-shifting copies of the input signal according to time instances when the first type of events occurs;

generating a second subset of the multiple versions of the signal by time-shifting copies of the input signal according to time instances when the second type of events occurs.

17. (New) The method as claimed in claim 16, wherein the forming a representation of a combination of multiple versions of the signals includes:

averaging together trajectories of the first subset of multiple versions of the signal to form a first crosslation function; and

averaging together trajectories of the second subset of multiple versions of the signal to form a second crosslation function.

18. (New) The method as claimed in claim 17, wherein the detecting step includes:

detecting the first type of event at time instances when the input signal crosses a predetermined threshold with a positive slope,

detecting the second type of event at time instances when the input signal crosses the predetermined threshold with a negative slope.

19. (New) The method as claimed in claim 18, wherein the measuring a parameter includes at least one of:

determining a time-reversibility of a process characterized by the input signal by comparing shapes of the first and second crosslation functions;

determining a minimum sampling interval according to a time interval at which there is a significant difference between at least one of the first and second crosslation functions and the average value of the input signal; and

calculating at least one of a sum and difference of the first and second crosslation functions.